

MERCURY - PERSEUS 400 kV TRANSMISSION LINE CULTURAL HERITAGE RESOURCES

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7 MARCH 2003

EXECUTIVE SUMMARY

This report deals with the cultural heritage in the proposed Mercury-Perseus 400kV electricity transmission line. As such it covers a long period in time (c. 200 000 years), and include a variety of cultural expressions, which gave rise to a diverse range of heritage resources.

Based on existing information, it can be shown that some areas have a higher density of archaeological sites than others: The north eastern section of corridor 1 and, to a lesser extent, the south western section of corridor 3. Based on this, it is anticipated that corridor no. 2 would have the least impact, as there are not any known heritage resources involved.

However, other environmental factors must also be considered. From a cultural heritage point of view, the overall impact on any of the three proposed corridors is considered to be low, in contrast, for example, to a road or a pipeline. In areas where sites do occur, it would be possible to lessen the impact by the application of suitable mitigation measures. It is therefore recommended that the proposed development can continue in any of the three corridors, on condition of acceptance of the recommendations/management measures as set out in Section 7 of this report.

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1. INTRODUCTION

The National Cultural History Museum was contracted by **Strategic Environment Focus** to undertake a scoping review of cultural heritage resources that might occur and as a result be impacted upon in an area in which the Mercury-Perseus 400 kV electricity transmission line is to be developed.

Cultural heritage resources are broadly defined as all non-physical and physical human-made occurrences, as well as natural occurrences that are associated with human activity. These include all sites, structures and artefacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development.

2. BACKGROUND AND BRIEF

This report gives an overview of the cultural heritage potential of the area in which it is proposed to build the transmission line. The client identified three possible corridors. The aim was therefore to identify, based on existing information, which of the three corridors would be the most suitable for the proposed development. This could be achieved by identifying areas/locations of possible high significance that consequently should be avoided. However, large sections of the area are still very under-researched by archaeologists, making an overview such as this somewhat dangerous, as there might still be many unrecorded/unknown sites.

The **Terms of Reference** for the study were to:

- 2.1 Identify the known cultural resources within the borders of the proposed development area.
- 2.2 Assess the possible impact of the proposed development on these cultural resources.
- 2.3 Develop mitigation or control measures for impact minimization and cultural resources preservation.
- 2.4 Develop procedures to be implemented if previously unidentified cultural resources are uncovered during the construction.

3. STUDY APPROACH

3.1 Information base (source)

Archaeologically speaking, this is not an area of high significance, as environmental constraints possibly forced people, especially during pre-colonial times, to select other areas to live in. Consequently, little research has been conducted in this area and that which has been done can be seen as baseline surveys rather than systematic, in depth research. Furthermore, most of these reports are quite old and some of the

findings and interpretations are open to re-evaluation. However, as we are only interested in the location of the sites, this does not detract from its use in identifying a suitable corridor.

3.2 Assumptions and limitations

Based on the above, it must be stated that this is not a final survey of the corridors, but an evaluation based on existing information and a short field visit, to determine which of the three corridors would be the preferred option. It is assumed that when all factors have been considered and a decision has being made, that corridor would then have to be subjected to a full assessment by an archaeologist.

3.3 Glossary of terms

Study area: Refers to the entire study area encompassing all the alternative alignments as indicated on the study area map.

Corridor: Refers to a specific alignment as numbered on the study area map (1 – 3)

Alternative alignment: Refers to a specific alignment (1 – 3) with one of the variations (a-b)

Proposed servitude: Refers to the proposed final alignment that the transmission line should follow.

Transmission line: Pylons support the 400 kV transmission line consisting of two steel support structures (supported by guy wires). Transmission lines area suspended between the supports.

Sub-station: A distribution point within the local and national network from which electrical current is rerouted along different power lines as well as distributed to local and municipal networks.

Stone Age: The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.

Early Stone Age	2 000 000 - 150 000 Before Present
Middle Stone Age	150 000 - 30 000 BP
Late Stone Age	30 000 - until c. AD 200

Iron Age: Period covering the last 1800 years, when new people brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and they herded cattle as well as sheep and goats. These people, according to archaeological evidence, spoke early variations of the Bantu Language. Because they produced their own iron tools, archaeologists call this the Iron Age.

Early Iron Age	AD 200 - AD 1000
Late Iron Age	AD 1000 - AD 1830

Historical Period: Since the arrival of the white settlers - c. AD 1840 - in this part of the country

3.4 List of abbreviations

EIA	Early Iron Age
ESA	Early Stone Age
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
PHRA	Provincial Heritage Resources Agency
SAHRA	South African Heritage Resources Agency

3.5 Methodology

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological and historical sources were consulted - see the list of references below. A few published sources pertaining to the historical events that took place in sections of the study area was found, as well as a number of reports on the archaeology in specific areas.

The **Archaeological Data Recording Centre** (ADRC), housed at the National Cultural History Museum, Pretoria, was consulted. This was used to draw up a preliminary map to indicate the existence of known sites of cultural significance, indicating potential problem areas.

This preliminary study was followed by a short field trip, from which an overview of the area was gained and an idea of the potential problems and expected heritage sites could be formulated.

4. STUDY AREA

The location and extent of the study area can be determined from the maps in Figure 1 and 2. It runs from south of the town of Orkney in the northeast, to Dealsville in the southwest of the Free State Province, a distance of close to 300 kilometres.

Topographically, the area presents rather uniform from north to south. Away from the rivers the landscape is one of flat plains with occasional small hills and natural pans. It is bisected in places by a number of smaller rivers. Closer to the rivers there occur small scarps where there are outcrops of more resistant rock (dolerite or sandstone). Usually there is a narrow strip of forest on either riverbank, with particularly *Acacia karroo*, *Rhus lancea* and *Ziziphus mucronata*. In the southeast a large number of natural pans occur, most of which are harvested for salt.

Currently, most of the area is either under cultivation (e.g. maize/sunflower/ground nuts) or used for grazing. In the former case, these activities would have impacted drastically upon any cultural resources that might have occurred in the area.

4.1. Description of affected environment

Stone Age

The Vaal River and its tributaries are well known for its river gravels, which, in some places contain large amounts of Early Stone Age tools as well as faunal material. These are located in the vicinity of the river courses, but are now fortunately mostly covered by alluvial soils. The original identification and dating (e.g. Söhnge, P.G., Visser, D.J.L. & Lowe, C. van Riet 1937; Archaeological Survey 1948) of these were later proved to be wrong, archaeologically speaking (Partridge & Brink 1967). However, it is advisable to be on the lookout for these gravels when construction of the transmission line starts, and to have an archaeologist present to investigate particular sites if necessary.

During Middle Stone Age times, people became more mobile, occupying areas formerly avoided. As a result, Middle Stone Age tools are usually found all over. Open sites were still preferred near watercourses or even around the pans found all over on the interior highveld areas. As a result, tools belonging to this period mostly occur in the open or in erosion dongas. In these cases the artefacts usually are disturbed completely out of context due to natural erosion, agricultural and other activities and are viewed to have little or no significance.

Late Stone Age people had more advance technology than the MSA people and therefore succeeded in occupying even more diverse habitats. However, they preferred rock shelters and caves to live in. These are found close to rivers at the various outcrops. In the latter case, this also presented a suitable 'canvass' for them to produce their art on, in this case rock engravings that are associated with their complex religious believes.

Iron Age

Iron Age people started to settle in southern Africa c. AD 300, but the occupation of the larger geographical area (including the study area) did not start much before the 1500s. However, this does not detract from the scale of the settlements found and the number of potential inhabitants. Because of their specific technology and economy, Iron Age people preferred to settle on the alluvial soils near rivers (for agricultural purposes), but also for firewood and water. As already indicated, these areas also have outcrops (dolerite and sandstone) that could be used for building purposes.

The layout of these settlements usually consists of a group of large primary stone walled enclosures, with associated bilobial dwellings linked to it. The latter usually occur in groups of four to five units, facing the associated livestock pens to the centre of the settlement.

Apart from stonewalls, remains such as occupational debris (potsherds, bone, metal artefacts and charcoal) and human burials are found on these sites.

Historical period

The historical period in this area starts with the arrival of early missionaries, hunters and traders, followed later by the Voortrekkers, who settled permanently and started to farm in the area. However, much of this heritage was destroyed during the Second Anglo-Boer War (1899-1902), when the British, following their 'scorched earth' policy, burned down all the farmsteads.

During the Second Anglo-Boer War a few battles and a number of smaller skirmishes took place in the larger area.

1. Bothaville:

Lord Methuen, the British commander moved from Hoopstad past Wesselsbron in the direction of Bothaville on 24th May 1900. Some time later, from September 1900, Gen. C R de Wet and Commandant Fourie camped in the vicinity of Bothaville.

Two months later, in November 1900, the British under Colonel Le Gallias ambushed a section of Gen. C R de Wet's commando south of the Vals River. During this time, the British forces camped on the dorpsplein in Bothaville. The next day, 6 November 1900, the battle of Bothaville or Doornkraal (south of the town, where the Boers were camped) took place. During this battle 97 Boers were caught, 17 were killed; 38 British soldiers were killed. A small monument was erected on this spot to commemorate the event and those killed.

2. Bultfontein

On 8 April 1902, Gen. C C J Badenhorst captured 200 British soldiers under Colonel Terman on the farm Hartenbosch near Bultfontein.

A section of Lord Methuen's forces moved on 13 April 1900 from Boshof in an eastern direction past Bultfontein to Brandfort in the hope of outflanking Gen. De la Rey. Veldkornet Diedericks then attacked the British between Bultfontein and Brandfort. Although totally outnumbered by the British, the Boers apparently carried the day and succeed to stop the flanking manoeuvre.

3. Viljoenskroon

The Earl of Munster, Lord Tewkesbury, was killed at the Lace Mine, located between Viljoenskroon and Kroonstad on 1 February 1902.

4. Vals Rivier

The Irish Brigade, under Colonel Blake, blew up the bridge over the Vals River on 12 May 1900. (However, it is not clear which particular bridge it was – in all probability it would be the one closer to Kroonstad and not Bothaville).

4.2. Legislative requirements

Aspects concerning the conservation of cultural heritage are mainly dealt within the Heritage Resources Act (Act 25 of 1999) and, to a lesser extent, the Environmental Conservation Act (Act 73 of 1989).

National Heritage Resources Act

This legislation aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future generations. Our heritage is unique and precious and it cannot be renewed. It helps us to define our cultural identity and therefore lies at the heart of our spiritual well-being and has the power to build our nation. It has the potential to affirm our diverse cultures, and in so doing shape our national character.

In terms of Section 35(4) of this act, no person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or material or any meteorite; bring onto, or use at an archaeological or palaeontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

In terms of Section 7(1) of the Act, SAHRA, in consultation with the Minister and the MEC of every province, must by regulation establish a system of grading of places and objects which form part of the national estate, and which distinguishes between at least the categories-

- (a) Grade I: Heritage resources with qualities so exceptional that they are of special national significance. Examples would be Mapungubwe Iron Age Site or the Castle in Cape Town.
- (b) Grade II: Heritage resources that, although forming part of the national estate, can be considered to have special qualities that make them significant within the context of a province or a region. Examples would be sites containing rock art, or the house of a person important in the history of the country.
- (c) Grade III: Other heritage resources worthy of conservation. Examples would be houses showing architectural merit, etc.

Environmental Conservation Act

This act states that a survey and an evaluation of cultural resources should be undertaken in areas where development, which will change the face of the environment, is to be made. The impact of the development on the cultural resources should also be determined and proposals to mitigate this impact are to be formulated.

5. IDENTIFICATION OF RISK SOURCES

The Environmental Impact Assessment is focused on two phases of the proposed development: **the construction and operation phases**. However, from a cultural heritage perspective, this distinction does not apply. Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted, can be written into the management plan, whence they can be avoided or cared for in the future.

Construction phase:

Possible Risks	Source of the risk
Actually identified risks	
- damage to sites	Construction work
Anticipated risks	
- looting of sites	Curios workers

Operation phase:

Possible Risks	Source of the risk
Actually identified risks	
- damage to sites	Not keeping to management plans
Anticipated risks	
- damage to sites	Unscheduled construction/developments

6. IMPACT DESCRIPTION AND ASSESSMENT

Impact analysis of cultural resources under threat of the proposed development, are based on the present understanding of the construction and running of a transmission line.

Each site is unique and should be treated separately.

The **significance** of a heritage site and artefacts is determined by its historical, social, aesthetic, technological and scientific value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Sites regarded as having low significance are viewed as being recorded in full after identification and would require no further mitigation. Impact from the development would therefore be judged to be low. Sites with a medium to high significance would therefore require mitigation. Mitigation, in most cases the excavation of a site, is in essence destructive and therefore the impact can be viewed as high and as permanent.

Table 6.1: Impacts on STUDY AREA

Stage in project lifecycle	Extent	Duration	Intensity	Probability of occurrence /risk	Significance		Status	Confidence
					WOMM	WMM		
Construction								
Damage	Local	Permanent	High	Highly probable	High	High		
Looting	Local	Permanent	Medium	Probable	Medium	Low		
Operation								
Damage	Local	Permanent	Medium	Probable	High	Low		
Looting	Local	Permanent	Low	Improbable	Low	Low		

WOMM: Without mitigation measures

WMM: With mitigation measures

7. RECOMMENDED MITIGATION / MANAGEMENT MEASURES

The following objectives and design standards, if adhered to, can eliminate, minimise or enhance potential impacts.

- The developer must ensure that an archaeologist inspects each site selected for the erection of a pylon. If a particular pylon impacts on a heritage site but cannot be shifted, mitigation measures, i.e. the

controlled excavation of the site prior to development, can be implemented. This can only be done by a qualified archaeologist after obtaining a valid permit from the PHRA (or SAHRA, if it is a category 1 site).

- The same action holds true for any infrastructure development such as access routes, construction campsites, borrow pits, etc.
- As stated earlier, people used to settle near water sources. Therefore riverbanks, rims of pans and smaller watercourses should be avoided as far as possible.
- Avoid all patches bare of vegetation unless previously inspected by an archaeologist. These might be old settlement sites.
- Rock outcrops might contain rock shelters, engravings or stone walled settlements, and should therefore be avoided unless previously inspected by an archaeologist.
- Communities living close to the proposed corridor should be consulted as to the existence of sites of cultural significance, e.g. graves, as well as sites that do not show any structures but have emotional significance, such as battlefields, etc.
- All graves or cemeteries should be avoided, unless when totally impossible. The correct procedure, i.e. notification of intent to relocate them, consultation with descendants and permit application, should then be followed in relocating the graves. If any of the graves are older than 60 years, they can only be exhumed by an archaeologist. Graves of victims of conflict requires additional permits from SAHRA before they can be relocated.
- Archaeological material, by its very nature, occurs below ground. The developer should therefore keep in mind that archaeological sites might be exposed during the construction work. If anything is noticed, work in that area should be stopped and the occurrence should immediately be reported to a museum, preferably one at which an archaeologist is available. The archaeologist should then investigate and evaluate the find.
- Any mitigation measures applied by an archaeologist, in the sense of excavation and documentation, should be published in order to bring this information into the public domain.

8. ALTERNATIVES

From a cultural heritage point of view, the overall impact of any of the three proposed corridors is considered to be low. Some areas seem to have a higher density of archaeological sites: The northeastern section of

corridor 1 and, to a lesser extent, the southwestern section of corridor 3 (see Figure 3). Corridor 2 would therefore be the preferred route, although no. 1 and 3 would also be acceptable. In the latter case, however, one might have to implement more mitigation measures if they are selected.

9. DISCUSSION

Mitigation of heritage sites implies first of all total avoidance, or, secondly, the recovery of sufficient data from the site in order that can be studied and understood at a later stage. This is not necessarily a negative viewpoint as science stands to benefit from such actions.

Assessing of the impact can only be done once a final corridor has been selected. If a corridor is selected, it would be of great importance to note exactly where the impacts are to take place, so that it can be minimised by the careful placing of pylons and access routes, or by applying suitable mitigation measures.

10. CONCLUSION

Based on what was found and its evaluation, it is anticipated that corridor no. 2 would have the least impact, as it seems that there are not any known heritage resources that would be impacted upon.

However, it is recommended that the proposed development can continue in any of the three corridors, on condition of acceptance of the recommendations/management measures as set out in Section 7 of this report.

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ADDENDUM: PREFERRED ROUTE 1.

The original report was essentially on an overview of the area in an effort to determine which of the three proposed alternatives would be the preferred route. Based on the site visit and available information, it was recommended from a heritage point of view that route 2 should be preferred, as it would be the least likely to impact on heritage resources. However, based on other environmental factors, route 1 was selected as the preferred route.

Existing knowledge indicate that the north eastern section of route 1 would be sensitive to development. It is quite possible that unknown Stone Age sites might be identified during a full-scale survey, especially in areas located close to the rivers. There are also quite a number of Iron Age sites to be found in the larger geographical area, belonging to early Tswana-speaking inhabitants. Anglo Boer War battlefields occur as well. There are might also be the odd farmstead or informal cemetery that might be located in any position along the route.

A power-line has, apart from a visual impact, e.g. where it crosses a heritage site, little impact except where it touched the ground in the form of the pylons, or in the establishment of associated infrastructure (e.g. access routes, borrow pits, etc.).

In the original report it was therefore recommended that once the final route has been selected, the developer must ensure that an archaeologist inspects each site selected for the erection of a pylon along the total route. The same action holds true for any infrastructure development such as access routes, construction campsites, borrow pits, etc.

In order to do this, detailed information is needed, such as the exact location (i.e. coordinates, on a suitably scale map) of all pylon positions, infrastructure development, etc. Once that is available, the preferred route can then be subjected to a full assessment by an archaeologist, it terms of the requirements set out in the Heritage Resources Act (no. 25 of 1999).

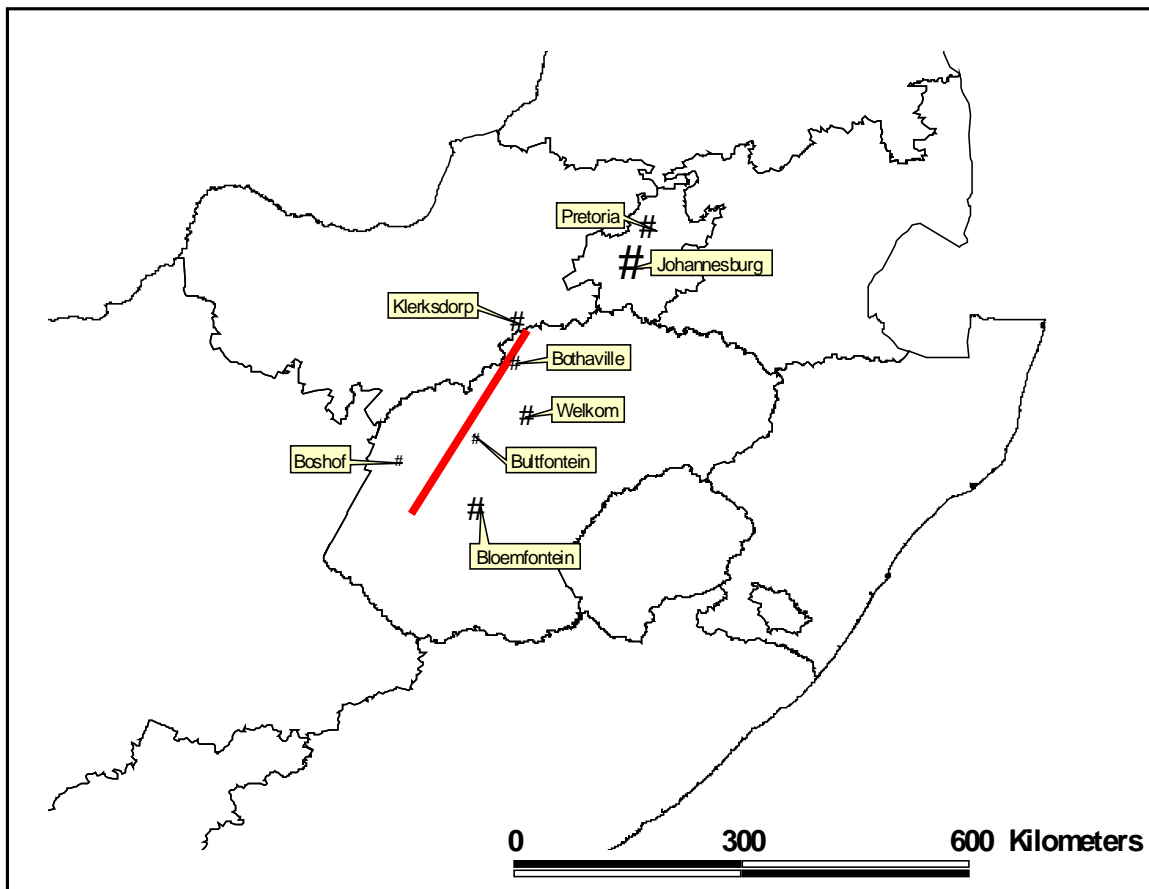


Figure 1. The study area in regional context.

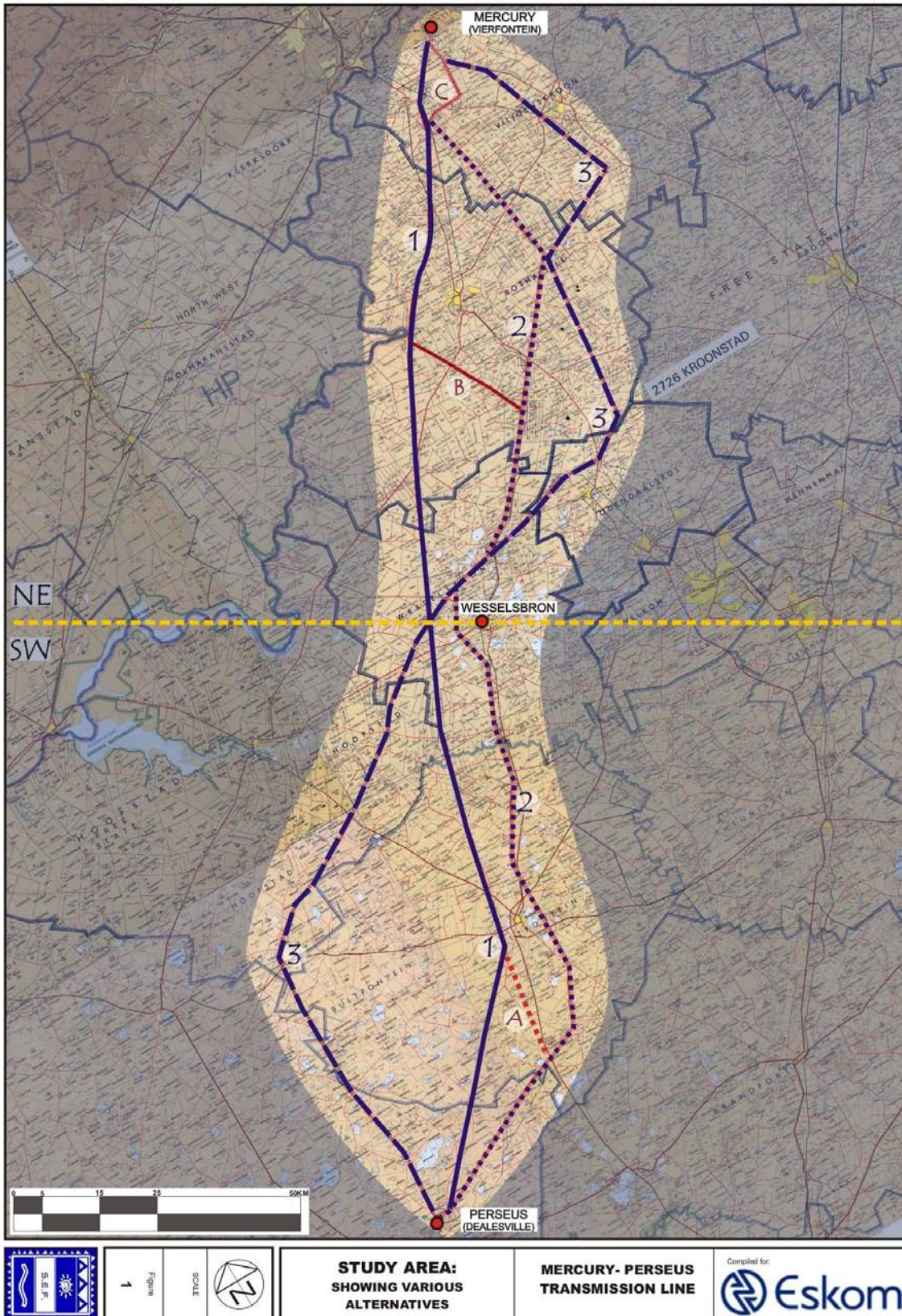


Figure 2. Detailed map showing the different alternatives for the transmission line.

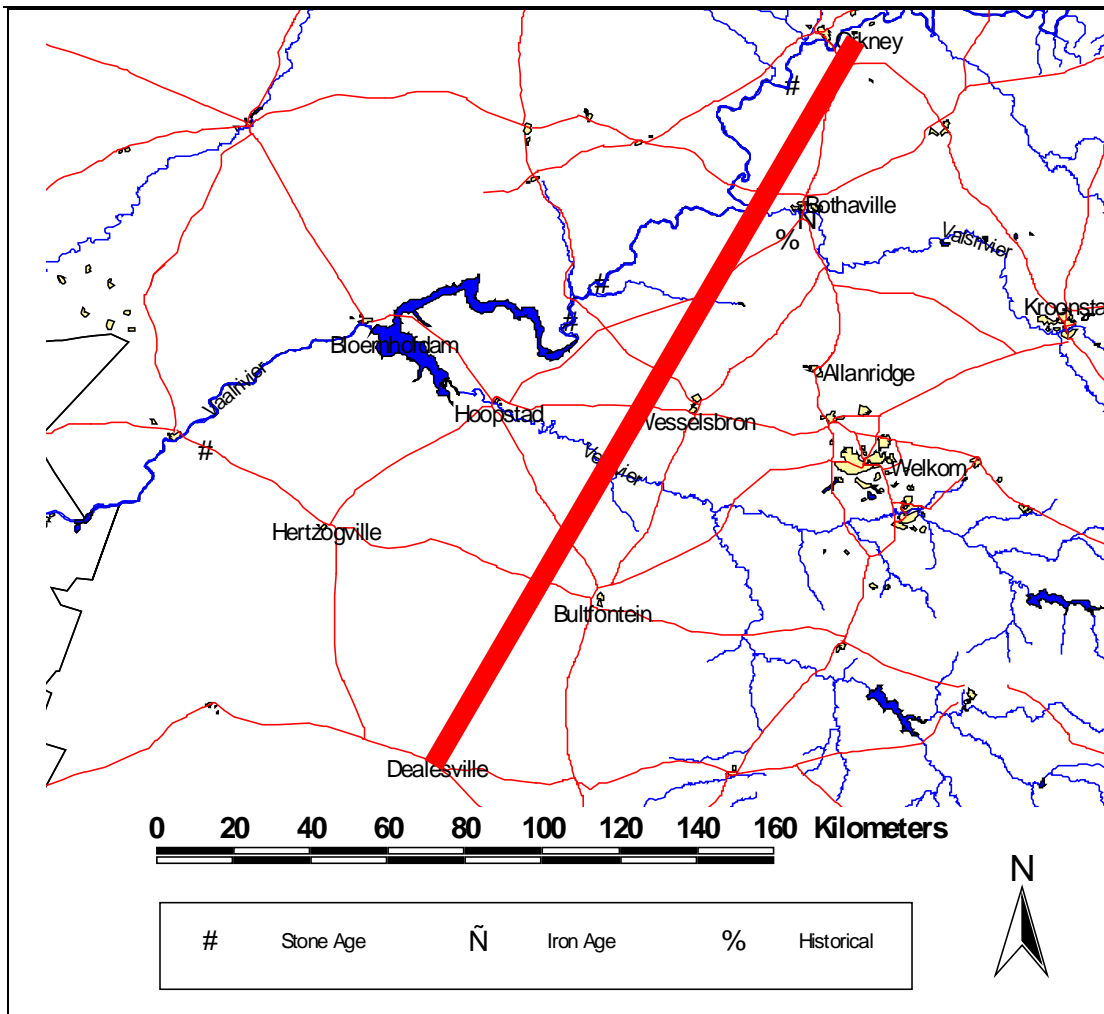


Figure 3. Generalised map of the location of known sites of cultural heritage in the vicinity of the proposed development. Each symbol represents a number of sites, rather than a single one.